

NOTICE:

The following information has been provided to AVOX Systems Inc. by the supplier of the material identified on the document. The information contained in the document is, to the best of our knowledge and belief, accurate. However, AVOX Systems Inc. makes no interpretations and bears no liability with regard to the completeness or accuracy of such information. Any questions regarding the following information or the material to which it pertains must be directed to the company or organization identified at the top of, Section I of, the document.

MALVERN MINERALS CO

MATERIAL SAFETY DATA SHEET

Date Prepared Jan 2, 2004

NOVACITE®

SECTION I- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL NAME AND SYN.

Silicon Dioxide, Silica, Micro Crystalline Silica, Tripoli, Free Silica
All Grades of NOVACITE®

Manufacture's Name:

Malvern Minerals Co.

P.O. Box 1238 (correspondence)

Hot Springs, AR 71902

Emergency Telephone Number

501-623-8893

(fax) 501-623-5113

Malvern Minerals Co.

220 Runyon St. (deliveries)

Hot Springs, AR

E-Mail: charles.steuart@malvernminerals.com

SECTION II- COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

	<u>Chemical Formula</u>	<u>Typical % by Weight</u>	<u>CAS #</u>
Crystalline Silica (quartz)	SiO ₂	99.12 %	14808-60-7
Aluminum Oxide	Al ₂ O ₃	0.04 %	1344-28-1
Titanium Oxide	TiO ₂	0.015 %	13463-67-6-7
Iron Oxide	Fe ₂ O ₃	0.04 %	1309-37-1

Exposure Limits for Hazardous Ingredients

	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>NIOSH REL</u>
Crystalline Silica (quartz) (respirable)	<u>10 mg/m³</u> % SiO ₂ + 2	.05	.05

Exposure limits are time weighted average concentrations for 8-hr up to a 10-hr shift, 40 hours per week.

OSHA – Occupational Safety and Health Administration

MSHA – Mine Safety and Health Administration

ACGIH – American Conference of Governmental Industrial Hygienists

PEL - Permissible Exposure Limit

TLV - Threshold Limit Value

TWA - Time Weighted Average, 8 hours

SECTION III – HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Malvern Minerals Co. silica is white to light gray in color and is in a powder form. It is not known to be environmentally hazardous. The silica is chemically inert and is a non-combustible mineral. Excessive and long-term exposure to silica dust may cause lung disease or silicosis.

When crystalline silica is heated to more than 870°C it forms tridymite. Crystalline silica heated over 1470°C can change to cristobalite. The OSHA PEL for crystalline silica as tridymite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

HEALTH HAZARDS

Potential Health Effects Through Inhalation

1. **Silicosis** Respirable crystalline silica can cause a scarring of the lungs (fibrosis) known as silicosis. Symptoms include cough, shortness of breath, wheezing and reduced pulmonary function. The disease may be aggravated by smoking. Silicosis may be progressive and may lead to disability and death.
2. **Cancer** Crystalline silica (quartz), inhaled from occupational sources, is considered a carcinogenic to humans. Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibers (published in June'97)
3. **Nephrotoxicity** There are some studies that show an increased occurrence of chronic kidney disease and end-stage renal disease in workers exposed to excessive respirable crystalline silica.
4. **Autoimmune Diseases** There are several studies an increased frequency of contracting scleroderma and other connective tissue disorders in workers exposed to respirable crystalline silica.
5. **Tuberculosis** Silicosis increases the risk of tuberculosis.

OTHER

Skin Contact No adverse effects

Eye Contact Crystalline silica may cause irritation and possible abrasion to the Cornea.

Ingestion Not applicable.

Chronic Effects Silicosis, cancer, autoimmune diseases, tuberculosis, and nephrotoxicity are all chronic effects.

Signs and Symptoms of Exposure There are generally no signs or symptoms of exposure to crystalline or silica.

SECTION IV – FIRST AID MEASURES

Gross Inhalation Remove victim to fresh air, give artificial respiration as needed, seek medical attention as needed.

Eye Contact Flush eyes immediately with water. If irritation continues, seek medical attention.

Skin Contact Wash exposed skin with soap and water.

Ingestion N/A

Medical Conditions Aggravated by Exposure: Conditions of individuals with lung disease can be aggravated by exposure to respirable silica (quartz).

SECTION V – FIRE FIGHTING MEASURES

Crystalline silica, in the form of quartz, is not flammable, combustible or explosive.

SECTION VI – ACCIDENTAL RELEASE MEASURES

Spills Use dustless methods (HEPA vacuum or wet method). Do not sweep. Wear protective equipment specified in Section XIII.

SECTION VII – HANDLING AND STORAGE

Precautionary Measures Do not breath dust. Use adequate ventilation and proper dust collection. Maintain and use proper, clean respiratory equipment. See Sec. VIII for proper respiratory equipment. Be careful with bags or containers to prevent spills or damage to bags. Do not use as a dry abrasive blasting agent. Use good housekeeping in storage areas and keep dust off of floor, bags and rafters. Employees that are handling micro silica (quartz) need to be trained in accordance with State and Federal regulations.

IN CASE OF RESALE, BAGS AND CONTAINERS MUST HAVE APPROPRIATE WARNING LABELS ATTACHED AND POSTED AS TO MSHA AND OSHA PRECAUTIONS AND REGULATIONS. PROVIDE PROPER TRAINING FOR YOUR EMPLOYEES.

Additional information on silica hazards and precautions can be found:

NIOSH Joint campaign on Silicosis Prevention <http://www.cdc.gov/niosh/sicampn.html>

OSHA Crystalline Silica Website <http://www.osha-slc.gov/SLTC/silicacrystalline/index.html>

MSHA Silicosis Prevention Website <http://www.msha.gov/S&HINFO/SILICO.HTM>

SECTION VIII – EXPOSURE CONTROL/PERSONAL PROTECTION

Ventilation Use sufficient exhaust to maintain exposures below occupational exposure limits (PEL). See ACGIH “Industrial Ventilation. A Manual of Recommended Practice”

Respiratory Protection Use appropriate respiratory protection as covered in The most recent standards of ANSI (Z88.2), OSHA (29 CFR 1910.134, MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic.

Gloves Recommended

Eye Protection Safety glasses or goggles are recommended

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Appearance White or light gray powder

Evaporation Rate N/A

Odor None

Specific Gravity 2.65

Vapor Pressure (mm Hg.) 10mm@1732°C

Melting Point 1710°C

Vapor Density N/A

Evaporation Rate N/A

Solubility in water Insoluble

SECTION X – STABILITY AND REACTIVITY

Stability Crystalline silica (quartz) is stable.

Incompatibility Don't contact with oxidizing agents such as fluorine, manganese trioxide and chlorine trifluoride.

Hazardous Decomposition or Byproducts Silica will dissolve in hydrofluoric acid Producing a corrosive gas, silicon tetrafluoride.

Hazardous Polymerization Will not occur.

SECTION XI – TOXICOLOGICAL INFORMATION

Refer to SECTION III – HAZARD IDENTIFICATION.

SECTION XII – ECOLOGICAL INFORMATION

No Ecotoxic data is available.

SECTION XIII - DISPOSAL

Dispose of waste by any approved solid waste disposal method- Limit exposure so that it does not exceed OSHA standard TLV. Wet to limit dust.

SECTION XIV – TRANSPORTATION INFORMATION

U.S. DOT HAZARD CLASSIFICATION For purposes of transportation under the U.S. Department of Transportation Table of Hazardous Materials, 49 CFR § 172 .101, crystalline silica (quartz) is not considered a hazardous material.

SECTION XV – REGULATORY INFORMATION

TSCA Toxic Substances Control Act: All of the components of the silica are on the inventory or exempt from the notification requirements.

SARA 311/312 Hazard Categories for SARA Sec. 311/312 Reporting: Chronic Health.

SARA 313 This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under the SARA Sec. 313 (40CFR 372):
NONE

CERCLA Section 103 Reportable Quantity: NONE

Canadian Environmental Protection Act: Naturally occurring silica (quartz) is listed on the Domestic Substances List and is exempt.

European Inventory of Commercial Chemical Substances: Exempt from notification Requirements. EINECS number for Quartz is 231-545-4

California Proposition 65: Crystalline silica (quartz) is classified as a carcinogen.

Australian Inventory of Chemical Substances: Exempt from notification requirements.

Japan MITI: All components are defined in the Chemical Substance Control Law.

WHMIS Classification: D2A

IARC: Crystalline silica (quartz) is classified in IARC Group 1

SECTION XVI – OTHER INFORMATION

Hazardous Material Information System: HMIS

Health * Flammability 0 Reactivity 0 Protective Equipment E

* See section III of this MSDS.

National Fire Protection Association NFPA:

Health 0 Flammability 0 Reactivity 0

NOTE: While the information and recommendations set forth herein are believed to be accurate as of the date thereof, THE MANUFACTURER MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with and other material or process. Nothing herein is to be taken as a license to operate under or a recommendation to infringe on patents or registered trademarks. Any use of these data and information must be determined by the user to be in accordance with federal, state and local laws and regulations.

Prepared by: Charles T. Steuart

